

MISSOURI. Conservationist

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The Value of Missouri Traditions

Assessing financial trends and explaining the Conservation Department's business model are complicated. To boil it down, operational costs have risen and public expectations are high while income continues below estimate. Today, we are reducing costs while reviewing options to enhance revenues.

In 1976 Missouri citizens established a dedicated $\frac{1}{8}$ of 1 percent of state sales tax to help support the agency's mission and services. On Nov. 4, 2008, voters in Minnesota approved a similar proposal creating a dedicated sales tax to support natural areas, wildlife habitat, clean drinking water, parks, trails, and arts and culture. The proponents of this measure modeled the wildlife habitat and natural areas part of their proposal after the dedicated sales tax for conservation in Missouri. We congratulate the citizens of Minnesota, but after three decades of experience here, we know the dedicated funding that supports conservation services has limits and is subject to fluctuations in the state's economy.

You will find our *Annual Report* in this issue, and I encourage a careful review. Your conservation dollars are managed by a grateful staff dedicated to providing excellent services to citizens and to the fish, forest and wildlife resources. Through the years, the conservation sales tax has broadened the scope of our work to include conservation education, a new division dedicated to private landowner services, Share the Harvest, winter fish stocking, natural communities, endangered species, prairies and more.

The Department has three major sources of revenue: 60 percent from the conservation sales tax, 18 percent from hunting and fishing permits, and 11 percent from federal management allotments. The Department does not spend any of the state's general revenue. Our entire budget represents less than 1 percent of the total state budget.

The sale of permits to hunters, anglers and trappers continues to provide a vital part of the funds spent on conservation. Missouri is a great place to hunt and fish, and we intend for that



tradition to continue.

Last fiscal year, receipts from the Department's two largest revenue sources, the sales tax and permit sales, were less than the year before. This marks only the third time in the history of the conservation sales tax where sales tax revenue was less than the prior year. Unfortunately, the downturn in revenues is continuing in the current fiscal year. Our major funding base has not kept pace with inflation for the past five years. This trend calls for a

heightened effort to be frugal and efficient.

When Missourians go afield, most don't think about conservation funding; they focus on nature and their activities in the outdoors. Yet, the management of conservation funds is very important to meeting their needs. For example, the photograph on this page was taken on Nov. 15, 2008, opening day of the firearms deer season. The three men are husbands, fathers and engineers, but, for a few days in November, they are deer hunters. One drove from North Kansas City, another drove from downtown St. Louis, and one left a job site in Central Iowa and drove nine hours to be at the old farm before sunrise opening morning. They annually return to the Ozark farm where their mentor introduced them to hunting years ago. Their passion for the outdoors is typical of thousands of Missourians, and those of us who work for the Conservation Department work for citizens like them.

We're committed to providing the best conservation programs and services possible, and we're grateful for your support.

John Hoskins, director









OUR MISSION: *To protect and manage the fish, forest and wildlife resources of the state; to serve the public and facilitate their participation in resource management activities; and to provide opportunity for all citizens to use, enjoy and learn about fish, forest and wildlife resources.*



Cover and left: Photographer Art Daniels captured these images of our national symbol, the bald eagle. To learn more about bald eagles and other Missouri raptors see the article *Missouri's Raptors* on Page 14. To order coins commemorating the bald eagle see Page 5. To see bald eagles in person, attend an Eagle Days event near you. More information on Eagle Days is available on pages 9 and 41 or visit www.MissouriConservation.org/4153.

NextGEN

This section reports on goals established in *The Next Generation of Conservation*. To read more about this plan, visit www.MissouriConservation.org/12843.

- 5  PLANTS & ANIMALS
- 6  PLACES TO GO
- 7  COMMUNITY CONSERVATION
- 8  OUTDOOR RECREATION
- 10  CLEAN WATER
- 11  HEALTHY FORESTS
- 12  LANDOWNER ASSISTANCE
- 13  CONSERVATION EDUCATION

FEATURES

- 14 **Missouri's Raptors**
by Carol Davit
Eagles, hawks, falcons and vultures captivate us with their power and grace.
- 32 **An Ordinary Outdoor Girl**
by The Ozark Region Protection Staff
Accessible Conservation facilities allow Tori and others with disabilities to enjoy the outdoors.
- 36 **Missouri Department of Conservation Annual Report**

MISCELLANY

- 2 **Letters**
- 4 **Ombudsman**
- 4 **On the Web**
- 40 **Hunting and Fishing Calendar**
- 40 **Contributors**
- 41 **Agent Notes**
- 41 **Time Capsule**





SPOTTED ONE!

I was delighted to see the fantastic photo of the plains spotted skunk [Species of Concern; November].

Although rare, if you look hard enough in the right habitat you might be surprised. An unfortunate spotted individual was road-killed on the outskirts of New Haven in early spring 2008.

**Kimberly Graczyk, St. Louis County Park Ranger,
New Haven**

RARE OAK CONFUSION

I just finished reading the December issue and have a question. On Page 11, there is an article

titled *Rare Native Oak* that I found interesting. However, I would like to know what the name of the tree is. I do not see this information in the article.

Kristi Valentine, Warsaw

Editors' note: The common name is Concordia oak. Though we made reference to the Friends of the Concordia Oak in the article, we did not directly mention the tree's name. We regret any confusion this may have caused.

The name "Concordia oak," used for the three-way hybrid from Lafayette County, already designates a small cultivar of the English oak (*Q. robur* 'Concordia', known for its bright yellow spring leaves). Surely taxonomists will want to avoid confusion here. Could you tell us what botanical epithet, if any, has been settled for the Missouri tree, and identify its three parents?

David Dunlap, West Plains

Editors' note: You're right—Concordia oak is also a common name for the English oak cultivar you mentioned below. Our Concordia is Quercus X introgressa (named by botanist P.M. Thompson). You can find more details on the Integrated Taxonomic Information System at www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=19363.

SUGAR CREEK BEACONS

While reading the *Conservationist* last night, I came across the Stream Team article about the "The Sugar Creek Beacons" [December]. I saw the picture, and it immediately brought back so many Streett family memories.

I was born four miles north of Gilman City in my parents' farmhouse, on land that Sugar Creek flowed through. My father had to cross the creek to get to farmland on the south side of our farm. My brothers and sisters (six of us) played and swam in a spot that looks so much like the picture. We especially enjoyed lazy Sunday summer afternoons there. Of course we did not know Topeka Shiners lived there.

We all started school at Gilman City, and I grew up to become an elementary teacher, from which I am now retired. I was so happy to read about the school having developed a Stream Team. Congratulations to Charles Jennings, the team, and the school I loved on their environmental efforts.

Mary Kathryn Streett Riddle, Brunswick

URBAN ADVENTURE

I am an avid deer hunter and recently was lucky enough to draw into the Burr Oak Woods Conservation Area for the black powder hunt. I would like to thank the staff and everyone at this great place for their efforts in putting on the finest managed hunt I've been involved in.

Hunting in an urban area is touchy, and the concern for private landowners around the area was number one on the list, as it should be. It was a class act, and I am looking forward to the next hunt. I had a great experience. The MDC should be very proud of these fine employees!

Danny Morehead, via Internet

MISSOURI. Conservationist

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Reader Photo LUCKY CATCH

Tim Fenner called this photo of a bald eagle catching a fish a "grab shot." "I stepped out of the car and there he was," said Fenner. "If I hadn't already had my camera in hand, I would have missed it." Fenner lives in Kansas City and calls photography his principal hobby. "I shoot birds in the daytime and stars at night." He captured this picture at Lewis and Clark State Park on Sugar Lake near St. Joseph. "My wife and I had gone to Lewis and Clark to shoot waterfowl. I had no idea there were eagles there until I saw this one."

on the WEB

This month check out our featured Web pages, or go online anytime to learn more about conservation at www.MissouriConservation.org.



NEED SEEDLINGS?

www.MissouriConservation.org/7294

We have redesigned our Web page for purchasing Missouri-appropriate tree seedlings. Check out the new services and features, and reserve your seedlings now.



NUISANCE NEGATION

www.MissouriConservation.org/7852

Many appreciate our plentiful wildlife, but sometimes these animals can become a nuisance. Educate yourself on how to control or minimize potential damage.



BEARING FUR

www.MissouriConservation.org/7863

Missouri is one of the top states for trapping furbearers, with roots going back to the early days of St. Louis. Learn about the history of trapping in Missouri.



ASK THE OMBUDSMAN

Q: Can you supply the dates for the 2009 fall firearms deer season? I need to schedule some November activities.

A: For 2009, there will be an urban zone portion Oct. 9–12, early and late youth portions Oct. 31–Nov. 1 and Jan. 2–3, a November portion Nov. 14–24, an antlerless portion Nov. 25–Dec. 6, and a muzzleloader portion Dec. 19–29. Dates for archery deer and turkey and fall firearms turkey season have not yet been set.

Q: What is the first plant to bloom in Missouri each year?

A: That distinction goes to a native shrub called Ozark witch hazel. Sometimes called vernal witch hazel, the Latin name is *Hamamelis vernalis*. Its small yellow and dark red flowers can open on leafless stems as early as mid-January, usually after a few days of mild weather. Once open, the fragrant flowers seem tolerant of winter conditions. It is not unusual to find Ozark witch hazel in bloom with snow on the ground underneath. For a winter-blooming plant, it is somewhat surprising that its flowers are insect-pollinated, by small bees and flies. It is found throughout the Ozarks of Missouri, Arkansas and eastern Oklahoma, most often along rocky stream bottoms. This native shrub has become more popular in recent years for ornamental planting in home landscapes.

Ombudsman Tim Smith will respond to your questions, suggestions or complaints concerning Department of Conservation programs. Write him at PO Box 180, Jefferson City, MO 65102-0180, call him at 573-522-4115, ext. 3848, or e-mail him at Ombudsman@mdc.mo.gov.



Ozark witch hazel



Species of Concern **Bachman's Sparrow**



Common name: Bachman's Sparrow
Scientific names: *Aimophila aestivalis*
Range: Southern Ozarks
Classification: State Endangered
To learn more about endangered species: www.MissouriConservation.org/8227

THE BACHMAN'S SPARROW once inhabited open, mature pine woodlands and glades in Missouri's Ozarks. Clearing of the state's pine forests dealt this species a blow. Later, fire suppression efforts permitted cedars and other trees to invade glades and open woodlands, further reducing suitable habitat. The species is not common anywhere within its range in the southeastern United States. Only three populations of these shy birds have been found in the Show-Me State since 2000, raising the specter that they could be extirpated within a decade. Ongoing efforts to restore pine woodlands on conservation areas in the Ozarks offer the best chance for this species' recovery in Missouri. Bachman's sparrows build open-cup nests near the ground and feed mostly on insects and seeds. These days, your best chance of spotting one is on large, open glade complexes in the southwestern Ozarks of Missouri.

Coins Celebrate Eagles, ESA

Proceeds go to the American Bald Eagle Foundation

The U.S. Mint has issued a set of eagle-themed coins to celebrate the 35th anniversary of the Endangered Species Act and to benefit the American Bald Eagle Foundation. The mint is offering a \$5 gold coin, a silver dollar and a half-dollar clad coin, each of which is available in proof or uncirculated conditions. All are being produced in limited numbers, and none will be minted after this year. For more information, visit www.usmint.gov.



Native Plant School

Classes show how to make nature work for you.

Native Plant School is in session, and Shaw Nature Reserve in Gray Summit is providing the teachers. Most classes are offered on the second Thursday of each month. Upcoming programs include Identification and Control of Invasive Woody Plants Jan. 8, Planning and Design of Native Landscaping Feb. 12 and April 9, Growing Native Plants from Seed March 12, Native Perennials and Grasses for Landscaping April 16, July 9 and Oct. 8, Identification and Control of Common Garden Weeds May 14, Managing Land for Quail May 22 and Sept. 16, Storm Water Runoff and Rain Gardening June 11 and Prairie and Savanna Reconstruction Aug. 13 and Sept. 10 and Deer-Resistant Native Landscaping Nov. 12. For more information, visit www.shawnature.org or call 636-451-3512





Ice Palaces

Seeps and springs create structural marvels in winter.

Old weather transforms seeps and springs into ice palaces that melt away days later. Visit these conservation areas (CAs) to see ice architecture. Bethany Falls Trail/Burr Oak Woods in Blue Springs, Maple Falls Trail at Bluffwoods CA in Buchanan County, Ironwood Hollow Trail/Sugar Creek CA in Adair County, Clifty Creek Natural Area (NA) in Maries County, Bluff Creek Trail/Emmenegger Nature Park in St. Louis County, Pickle Springs NA in St. Genevieve County, Millstream Gardens CA in Madison County. Find these and other CAs at www.MissouriConservation.org/2930.



Double-crested cormorant

If you think birding in Missouri is slow in winter, think again. Little River, Ten Mile Pond, Otter Slough, Duck Creek and other conservation areas in the Bootheel region teem with ducks, geese and other water birds in January, creating a spectacle worth the drive. Many waterfowl hunters already know they can find ducks of almost every description (not to mention snow, white-fronted and Canada geese) at these areas. Birders also might be interested in double-crested cormorants, horned grebes, black vultures, bald eagles, northern harriers, Wilson's snipe and trumpeter swans. Tundra swans and golden eagles occasionally visit these areas, too. Look in thickets and forests around the wetlands and you might spy winter and Carolina wrens, brown creepers, cedar waxwings, pileated woodpeckers, yellow-bellied sapsuckers or ruby-crowned kinglets. You can locate these and other conservation areas in southeastern Missouri by visiting www.MissouriConservation.org/2930. Visit www.MissouriConservation.org/7559 for hunting information.

Bootheel Birding

Winter is a hot destination in southeast Missouri.

If you think birding in Missouri is slow in winter, think again. Little River, Ten Mile Pond, Otter Slough, Duck Creek and other conservation areas in the Bootheel region teem with ducks, geese and other water birds in January, creating a spectacle worth the drive. Many waterfowl hunters already know they can find ducks of almost every description (not to mention snow, white-fronted and Canada geese) at these areas. Birders also might be interested in double-crested cormorants, horned grebes, black vultures, bald eagles, northern harriers, Wilson's snipe and trumpeter swans. Tundra swans and golden eagles occasionally visit these areas, too. Look in thickets and forests around the wetlands and you might spy winter and Carolina wrens, brown creepers, cedar waxwings, pileated woodpeckers, yellow-bellied sapsuckers or ruby-crowned kinglets. You can locate these and other conservation areas in southeastern Missouri by visiting www.MissouriConservation.org/2930. Visit www.MissouriConservation.org/7559 for hunting information.

Trail Guide



QUEEN CITY HIKING HEAVEN



VISITORS TO THE Springfield Conservation Nature Center can watch wildlife and learn about nature indoors or pursue outdoor adventures on five hiking trails. The Savanna Ridge Trail forms a loop north of the nature center.

The 1.6-mile Long Trail meanders south from the northern tip of the Savanna Ridge Loop, traversing fields, Galloway Creek and the upper end of Lake Springfield. The .1-mile Photo Blind Trail leads to a wildlife viewing blind on the lake. Turn right after crossing the lake to the Boardwalk Trail, which delves into Springfield Lake's marshy upper end before returning to the Nature Center. The Long Trail passes a losing stream, a small spring, and a glade. Fox Bluff Trail makes a .3-mile loop with benches overlooking Lake Springfield. All the trails are for hiking only—no bicycles or horses allowed.

Area name: Springfield Conservation Nature Center

Trails: Savanna Ridge, Boardwalk, Fox Bluff, Long, Sycamore Cut-off, Photo Blind, and Ozark Greenways Connection

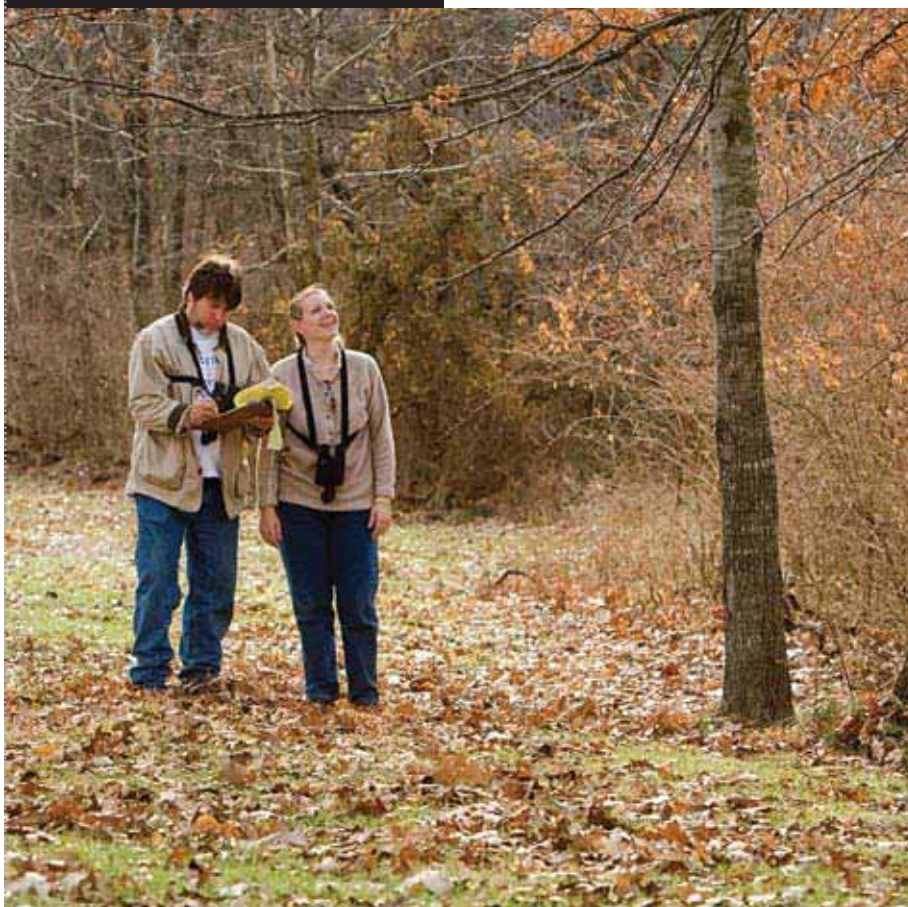
Unique features: 5-acre glade, losing stream and small spring, plus savanna, wetland and bottomland and upland forest

For more information: Call 417-888-4237 or visit www.MissouriConservation.org/2360



TAKING ACTION

Join the Great Backyard Bird Count



Featured event: The Great Backyard Bird Count, a joint project of the Cornell Lab of Ornithology and Audubon, is an annual four-day event that engages bird watchers of all ages in counting birds to create a real-time snapshot of where the birds are across the continent. Anyone can participate, from beginning bird watchers to experts.

Get involved: The event will be held Feb. 13–16. Participants count birds for at least 15 minutes on one or more of the days and report their sightings online at www.birdcount.org. Visit this Web site for more information, or contact the Cornell Lab of Ornithology at 800-843-2473 or Audubon at citizenscience@audubon.org or 215-355-9588, Ext 16.

ALL AGES AND skill levels are invited to become citizen scientists during the 12th annual Great Backyard Bird Count. By contributing as little as 15 minutes, you'll help researchers learn about bird population trends—critical information for making conservation decisions. Challenge yourself, your family, your business and/or your community group to improve your observation skills and enjoy nature through this effort to develop a comprehensive picture of what birds are up to in North America this winter.

A variety of resources are available online at www.birdcount.org, from help with bird identification to special materials for children and educators. Participants are also encouraged to submit photos for the Great Backyard Bird Count photo contest. These and video submissions may be featured on the GBBC Web site. This event is made possible, in part, by support from Wild Birds Unlimited.

Enviro-Science Scholarship

DNR offers scholarship for underrepresented students.

The Department of Natural Resources' Environmental Education Scholarship Program provides scholarships to minority and other underrepresented students pursuing a bachelor's or master's degree in an environmental course of study. Areas include civil, chemical, mechanical, agricultural and environmental engineering; environmental areas such as geology, biology, wildlife management, planning, natural resource management or a closely related field; environmental chemistry; and environmental law enforcement.

Students applying for this scholarship should be Missouri residents, have a cumulative high school GPA of 3.0 on a 4.0 scale, or if enrolled in college, have a cumulative GPA of 2.5 on a 4.0 scale, and be enrolled as a full-time student in a Missouri post-secondary institution. Application materials include three letters of recommendation, a summary of school and community activities, transcripts, and a one page essay. All materials must be postmarked by June 1. Scholarships will be awarded each semester subject to appropriated funds to students selected by the Minority Environmental Literacy Advisory Commission.

For more information, visit www.dnr.mo.gov/hr/scholarship.htm or contact Dana Muessig at dana.muessig@dnr.mo.gov or 573-751-8317.





Light Goose Hunting

This season is an exciting bargain for waterfowlers.

The U.S. Fish and Wildlife Service has implemented a Light Goose Conservation Order for the 11th consecutive year. The order, which allows a long hunting period, no bag limits and liberalized hunting methods, is designed to help reduce populations of snow geese and white geese. These species' numbers have multiplied to the point that the birds are causing ecological damage to portions of fragile arctic tundra.

The Conservation Order for light geese will be in effect from Jan. 31 through April 30. A Missouri Migratory Bird Hunting Permit (\$6 for both residents and nonresidents) is the only permit required to hunt during this conservation order.

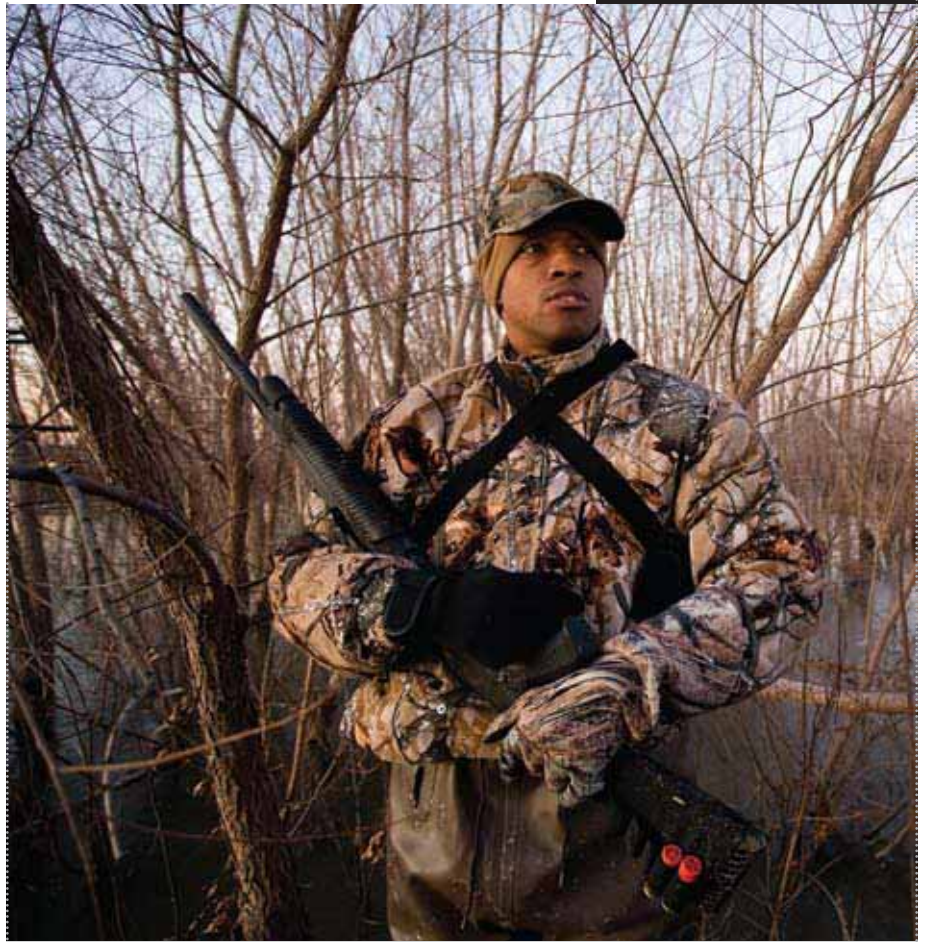
For in-season snow goose hunting reports, go to www.MissouriConservation.org/hunt/wtrfowl/weekly-snow/.

Light goose hunting can be the most exciting event of your life. You might be surrounded by thousands of noisy, feeding birds at one time, and they'll block out the sky when they take flight. You could experience unforgettable wingshooting. For a description of the action, read *Hunting the Wind* in the October 1997 *Conservationist*, online at www.MissouriConservation.org/conmag/1997/10/30.htm. You can find a proven recipe for cooking snow geese at www.MissouriConservation.org/news/out/1998/121198.html.



Nodaway Valley

Scout it Out



Name: Nodaway Valley Conservation Area

Location: Holt and Andrew counties, north of St. Joseph.

For more info: www.MissouriConservation.org/a9134



WATERFOWL HUNTERS AND watchers will find Nodaway Valley Conservation Area, located north of St. Joseph, a great place to get their feet wet. More than half of this 3,813-acre area is composed of wetlands. About 2,000 acres of shallow wetland habitat and more than 400 acres of bottomland forest were restored in a massive project completed in 2002 with the help of conservation partners. The area, which is bisected by a 4.4-mile stretch of the Nodaway River, draws waterfowl like a magnet.

During the waterfowl season, portions of the area are designated as a Waterfowl Hunting Zone, which means that they are open only to registered waterfowl hunters. A Refuge Area is closed to all uses from Oct. 15 through Jan. 15, and a No Hunting Zone is closed to all hunting throughout the year. However, this area is open to nature viewing and other uses from the close of the North Zone Duck Season to Oct. 14. The areas are posted and are shown on the area map. White and snow goose hunters taking advantage of the Light Goose Conservation Order may set up in areas open to hunting without registering.



Feed Hungry Birds

Backyard snack bars keep birds in good shape.

Birdfeeding is not a bad hobby for you or the birds. It's easy to get started, inexpensive to maintain and provides you with an infinite variety of interesting behavior to study or simply observe. The birds, on the other hand, benefit greatly from having a ready supply of vittles at a time when natural food sources are difficult to obtain.

There are no rules to birdfeeding, but it is better to place feeders where predators, such as house cats or hawks, won't find the visitors easy prey. It's nicer for the birds, too, if there is nearby cover to hide in or to block the cold wind.

Choose a location where you can observe the birds from a comfortable place inside your house. Start with a platform feeder and, perhaps, a finch feeder. Add different foods and feeders as you become a more sophisticated birdwatcher. Don't worry if the birds don't come right away. They'll eventually find your food and put your feeders on their normal route.

Stock your feeder regularly to keep the birds coming. Although birds can survive winter on natural food, backyard feeders likely reduce bird mortality during ice storms and severe weather.



Carolina wren

Bald Eagle Watching

Visit these prime spots for viewing our national symbol.

Eagle Days are fun and exciting events that let you learn about and see our national symbol in the wild. You can find out about Eagle Days adventures by going to www.MissouriConservation.org/4153.

If you prefer to strike out on your own, however, simply visit the same locations on your own schedule. Early in the morning is the best time to see eagles flying and fishing. Later in the day, they'll be perched in large trees along the water's edge. The lack of foliage in winter allows you to spot them easily. Bring binoculars or a scope and dress warmly. This is cold birdwatching.

BIRDS OF A FEATHER



Black-capped chickadee

Chickadee-dee-dee

IT'S OK TO have a favorite bird. Mine has always been the chickadee. I've watched them from the kitchen window and from a treestand, where they seemed almost as interested in me as I was in them. They like wooded areas, and they're a plucky little bird that will flit to a nearby limb to give you a sidelong appraising look.

We have two species of chickadees in Missouri and it's hard to tell them apart. Both the black-capped (*Poecile atricapillus*) and the Carolina (*Poecile carolinensis*) chickadees have a black cap and bib and white cheeks. Carolina chickadees are slightly smaller than black-caps and have more, or at least some, white visible in their wings. You are more likely to see Carolinas in the Ozark region and black-capped everywhere else.

Both have an entertaining call—*chick-a-dee-dee-dee*. However, the Carolina chickadee's call is higher pitched and more rapid. Their whistled songs also differ. Black-caps have a two- or three-note whistle—*fee-bee* or *fee-bee-ee*—while Carolina chickadees whistle a four-note *fee-bee-fee-bay*.

Chickadees are year-round residents of Missouri and often beat migrating wrens to birdhouses suitable to both species. They are territorial during their breeding season, but form flocks in winter. They often frequent birdfeeders and will cache or hide some of the seeds to eat later.



Get EQIPed to Protect Water

Healthy water starts with healthy land

Farmers, ranchers and confined animal feeding operators concerned about their bottom lines and their streams find help with both in the Environmental Quality Incentives Program. EQIP can pay up to 75 percent of the cost of structural practices or management practices that keep nutrients, sediment and pesticides out of streams and groundwater. The program also offers incentives for improvements that benefit at-risk wildlife. Applications are open year-round, and are approved around the end of the calendar year. To learn more about EQIP, call the nearest office of the Natural Resources Conservation Service, or visit www.nrcs.usda.gov/programs/eqip/.



about it," recalls VanPatten. "Then one day I picked it up again and re-read it. I remember thinking what a great idea it was. I grabbed a pen and filled out the application on the back. It was a self-mailer so I put a stamp on it and sent it in." King's counterpart at the Conservation Department, Joe Bachant, was surprised when the one-of-a-kind brochure showed up on his desk, making the Roubidoux Fly Fishers Stream Team No. 1. Today 3,835 Stream Teams devote hundreds of thousands of hours annually to stream conservation. To join, visit www.mostreamteam.org.

Mo. Stream Team Turns 20

Starting with a few fly fishers to 3,835 teams and growing

Missouri Stream Team began in January 1989 with the notion of empowering citizens to care for their streams. It was only an idea floating around the heads of the late G. Andy Runge and other conservation visionaries on the Conservation Federation of Missouri's Rivers and Streams Committee. Then committee member Marty King handed a mock-up of a promotional brochure to Mark VanPatten of the Roubidoux Fly Fishers. "I looked over the brochure set it down and forgot

Stream Team



Show-Me Clean Streams



THIS GROUP'S NAME embodies a little irony. When they began checking streams in and around Columbia they were hard-pressed to show anyone a clean stream. Long-time team member Charles Laun, a retired

microbiology professor, recalls sending his students to Hinkson Creek and other streams for samples to use in class and being amazed at how high the bacteria counts were. Most of their work to date has been focused on identifying problems and raising public awareness of what they found. They have spent more than 2,400 hours conducting programs in schools and other public forums. On a more hands-on level, Show-Me Clean Streamers have hauled more than 15 tons of trash out of area streams and planted nearly 10,000 trees to protect stream-side land from erosion. Their current focus is on obtaining grants for more remedial work. Asked why they do it, Laun said, "It's a lot of fun."

Stream Team Number: 523

Date formed: Sept. 19, 1994

Location: Bonne Femme, Hinkson and Hominy creeks

For more info about Stream Teams: www.mostreamteam.org



Our Glorious Forests

INDIAN TRAIL CA



Size: 13,510 acres

Location: 12 miles northeast of Salem on Highway 19 in Dent County.

Habitat types: A beautiful mix of oak and hickory forests, with an intricate mosaic of dolomite glades, chert savannas and woodlands throughout the area

Facilities and features: Primitive camping, Indian Trail Fish Hatchery/Blackwell Lake (35 acres), picnic area, numerous small ponds, two permanent streams (Fishwater Creek, Crooked Creek)

Find more info: www.MissouriConservation.org/a6201



ALTHOUGH INDIAN TRAIL CA's name recalls a tragic period in American history, the area itself is a legacy of Missouri's early conservation efforts. In 1838, the United States government forced more than 16,000 Cherokee people from their eastern homelands and marched them to Oklahoma.

One route of this "Trail of Tears" passed through land that would become Indian Trail CA. In the late 1800s, the Sligo Iron Company operated on the area, although its smelters exhausted local timber, and it soon closed. Later owners used the area for range until the state purchased it in 1927. From 1930 until 1960, the area served as a game refuge, providing deer and turkey for restocking programs. Civilian Conservation Corps crews built most of the area's access roads, constructed the hatchery pond and planted trees. Today's forest practices improve wildlife habitat, maintain watershed quality and enhance tree growth, quality and species composition.

Dogwoods and Hawthorns

Fruit-bearing trees sustain wildlife through winter.

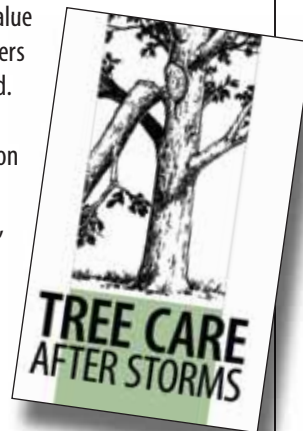
Whether you live in St. Louis or rural Hickory County, you can help your local birds and small wildlife survive winter. The simplest way to do this is plant fruit-bearing native trees such as dogwood and hawthorn. These trees reward you with beautiful blossoms in spring, shade in the summer, colorful leaves in the fall, and bright red berries well into winter. Birds and squirrels will also reward you with their daily visits and feeding antics. You can order dogwood and hawthorn seedlings from the George O. White State Nursery online until April 15 at www.MissouriConservation.org/7294. To find other sources of Missouri-grown native trees and shrubs, visit the Grow Native! Web site at www.GrowNative.org. Click on "Buyer's Guide" to find a supplier in your area.

Tree Care After Storms

A certified arborist can often treat damaged trees.

Now, ice, tornadoes, hail and high-velocity winds are just a few of the natural perils Missouri's trees experience. When storms damage trees, cleanup and recovery can be bewildering. Some injured trees can be treated and repaired to maintain their health and value to your home. Others should be removed.

When hiring someone to work on your trees, be sure you use a certified, experienced professional arborist. Download a detailed brochure on caring for storm-damaged trees and finding a certified arborist at www.MissouriConservation.org/10133





Winter Prescribed Burns

This practice helps restore woodland diversity.

Historically, about 70 percent of the Ozark landscape was woodland or grassland, with an understory of grasses and wildflowers. Frequent low-intensity fires maintained this open, parklike appearance. Once fires were controlled, the canopy thickened up, and cedars invaded, blocking sunlight and choking out the understory layer of grasses.



If your objective is to improve woodland diversity, burn late fall or winter, once every three to five years. Call your regional office to find out about prescribed burn workshops near you (Page 3).

Clearing Cedar? Sell it!

Web site helps you find local markets and harvesters.

The result of clearing Eastern redcedar from glades and woodlands is a heap of cedar. It doesn't hurt to leave a few brushpiles for wildlife habitat, but with a little research, you can turn your cedar "waste" into cash. To find a mill that buys Eastern redcedar in your county or region, visit www.MissouriConservation.org/13900. You can search this database by mill, county, species or product. If you don't want to cut, limb, load and haul the cedar yourself, you can probably find a logger through your local mill who is willing to contract for this service. For information about the market for value-added Eastern redcedar products, visit the University of Missouri Center for Agroforestry Web site at www.CenterForAgroforestry.org.



www.CenterForAgroforestry.org.

Timber Stand Improvement

On the Ground



Dustin Chasteen (left) and landowner Mark Lloyd

"WE'VE SEEN A dramatic change in the wildlife." Manager Dustin Chasteen is talking about the "extreme wildlife response" to timber stand improvements he applied to St. Louis businessman Mark Lloyd's 460-acre Franklin County farm. "The bobcats are coming back, the quail are using the timber, and the deer have more places to hide." Timber stand improvement (TSI) is the removal of selected trees from woodland to improve its health and growth. The forester's equivalent of "weeding the garden," the TSI practice allowed Mark and Dustin to decide which trees to keep. Their treatments reduced competition in stands scattered across the property, and improved habitat values for wildlife in just two years. The Department of Conservation's free publication, *Timber Stand Improvement*, covers details on conducting TSI. To order write to: MDC, *Timber Stand Improvement*, PO Box 180, Jefferson City, MO 65102-0180 or e-mail pubstaff@mdc.mo.gov.



Learn About Furbearers

DVD introduces you to Missouri's fur-bearing mammals.

For more than 11,000 years, people in North America have hunted furbearers for food and clothing. Missouri has fourteen different kinds of mammals that bear fur. You're probably already familiar with many of them—raccoons, skunks, weasels, squirrels, coyotes, groundhogs, etc. Some live quite close to people, others keep their distance from humans. *Furbearers of Missouri*, a 38-minute DVD, shows how furbearers live, the hazards they face, and what we can do to conserve them. Also included on this disc is *The Nature of Trapping*, a bonus segment that features wildlife biologists, homeowners, an urban trapper and a veterinarian who discuss how to use trapping to balance the needs of people and other life in a modern, yet natural world. This item is available for \$10 plus shipping and handling and sales tax (where applicable). To order, call toll-free 877-521-8632 or visit www.mdcNatureShop.com.



Naturescaping Workshops

Visit our Web site for the date and place nearest you.

If you want more birds and butterflies in your yard, plant more native plants.

Many native wildlife depend on certain species of native plants during part or all of their life cycle. Also, native plants are adapted to Missouri's soils and climate. Learn how to choose, plant and maintain the right native plants for your landscape at a Naturescaping Workshop this spring. Several nature centers around the state are offering the workshop, and most include a native plant sale. Find dates, locations and full details on our Web site at www.MissouriConservation.org/7910.

NATURE ACTIVITY



PHOTO: NOPPADOL PAOTHONG

Family Fun Programs at Springfield and Cape



FEBRUARY IS FAMILY Fun Month at Springfield Conservation Nature Center. This year the center celebrates with programs every Friday night. On Feb. 6, renowned storyteller John Hernandez shares Native American

stories, chants and drumming. On Feb. 13, families can enjoy a guided Owl Prowl and see live owls during an indoor presentation by Dickerson Park Zoo. The Emmy Award-winning duo of Jan and George Syrigos, known as WildHeart, present two musical performances on Feb. 20, and amphibians rule during Amazing Amphibian Family Fun Night on Feb. 27.

Cape Girardeau Conservation Campus Nature Center will observe Family Fun Month with a puppet show, "Big Mouth Frog and Friends," on Saturday, Feb. 28 at 11 a.m. and 1 p.m. This production is all about Big Mouth Frog, who discovers what to eat as he meets forest friends and talks with them about their favorite foods.

Program: All programs are free, but registration is required.

When: At Springfield CNC on Friday at 7 p.m. At Cape Girardeau CCNC Saturday on Feb. 28 at 11 a.m. and 1 p.m.

To register: Call Springfield CNC at 417-888-4237 beginning Feb. 1. Call Cape Girardeau CCNC at 573-290-5218.



NOPPADOL PAOTONG

MISSOURI'S Raptors

BY CAROL DAVIT

Eagles, hawks, falcons and vultures captivate us with their power and grace.



Red-shouldered hawk

We know more about the hunting behavior of raptors, aptly known as “birds of prey,” than we do about many of Missouri’s other native predators. That’s because most predators, including bobcats, otters, coyotes and our nocturnal raptors, the owls, primarily hunt at night. Eagles, hawks, falcons and most other raptors, however, hunt during the day, allowing us to observe their predator-prey relationships in forests, woodlands, prairies, wetlands, and even along roadsides.

What Makes a Raptor a Raptor?

Despite differences in size, habitat, feeding habits and flight, most raptors share the following traits:

- Strong feet, toes and talons, for killing and holding prey. In fact, the word raptor derives from the Latin *raptus* (“one who seizes”).
- A large, curved beak for tearing flesh.

- Sharp vision, up to eight times better than humans. If you could see like a hawk, you could read a newspaper from a football field away.
- A bony shield above each eye, protecting the eyes from tree limbs, brush and struggling prey. These bony projections also shield raptors’ eyes from the sun as the birds soar to stalk prey.
- Simple calls—harsh, high-pitched screams, cries or whistles.
- Solitary hunting strategy, although vultures and, to some extent, bald eagles, are scavengers.
- Size difference between males and females in many species. The female is sometimes as much as twice as large as the male. Because of this, males and females sometimes seek different-sized prey, which is especially helpful for brood survival.
- Nests constructed from sticks in tall trees, along cliffs or even atop utility poles. Nests are often used year after year by the same birds and grow larger each season. Most raptors lay one to three or four to six eggs every year, depending



NOFPABOL PAOTHONG

Black vultures



on the species, with both parents usually sharing in incubation and brood rearing.

- **Fantastic flyers.** Large hawks, eagles and vultures can glide for miles on rising air currents; kites can dart and swoop like acrobats; and falcons can dive with terrific speed.

Scientists have placed eagles, hawks, falcons, osprey, kites and vultures into the taxonomic order Falconiformes. Owls (Order Strigiformes) share many traits with these raptors but are nocturnal, hunt primarily by sound rather than vision and swallow prey whole rather than tearing it apart. There are 290 species of raptors worldwide, 33 in North America and 19 that have been observed in Missouri.

Raptors and People

The bald eagle—found only in North America—is our national symbol. Eagles, hawks, vultures and falcons appear on national, tribal, family and sports team emblems, crests, coats of arms and flags around the world. Images of raptors appear in relics from the civilizations of the Aztecs and Romans, and in ancient Zimbabwe, Egypt and numerous regions of the Middle East, Europe and Asia. Many Native Americans continue traditions of using raptor images and artifacts in ceremonies to invoke the spirit and power of these exceptional hunters.

Why have raptors figured so prominently in human history? Being large and active during the day, raptors are noticeable. Because raptors spend considerable time quietly stalking prey, either by soaring or perching in trees, people have had time to study them. Their calls are loud and simple and immediately capture attention.

Beyond their regal stature and strength, something more primal attracts us to raptors. Like humans, raptors are top predators. We respect their keen purpose and focus, their hunting prowess, their speed and grace.

Raptor Conservation

Being at the top of the food chain has its perils. If what you eat is poisoned, you may be poisoned, too. After World War II, long-lived pesticides, like DDT, entered food chains worldwide. Rodents and fish ate contaminated insects; small birds, mammals and reptiles ate rodents; and raptors ate these animals, with concentrations of pesticides accumulating in fatty tissues at higher levels up the food chain.

Pesticide contamination in bald eagles, osprey and other raptors caused thin-shelled or otherwise defective eggs, so populations plummeted. In 1972, Congress banned the use of DDT within U.S. borders, but DDT persisted in ecosystems for decades. In 1978, the U.S. Fish and Wildlife Service placed bald eagles on the federal endangered species list. No successful bald eagle nests were known in Missouri between 1965 and 1982, and eagles disappeared as summer residents. Illegal shooting of bald eagles and other raptors also decreased populations, as did the loss of habitat to development.

Since the 1980s, bald eagles have made a nationwide comeback, thanks to the decline of DDT in food chains, legal protection and reintroductions to states where they had ceased to nest. In 2007, there were more than 10,000 pairs of bald eagles nesting in the U.S., with about 150 known nests in Missouri. The Fish and Wildlife Service removed eagles from the endangered species list in 2007.

The bald eagle is the national symbol of the United States and is still protected under the Bald and Golden Eagle Protection Act. Bald eagles, and all other migratory birds, are also protected under the 1918 federal Migratory Bird Treaty Act, which prohibits the killing, capture, possession, sale or shipment of any migratory bird except as provided for by regulations.

Living conditions for many raptors have improved in Missouri, and conservation efforts will ensure their presence here. Here's what you can do to help:

- Support efforts to conserve and restore the natural communities that raptors require. Different raptors need prairies, bottomland forests, wetlands, rivers, lakes and upland forests, woodlands and savannas.
 - Dispose of toxins and wastes properly: keep human waste, motor oil, pesticides and other contaminants out of water bodies and soil.
 - Properly dispose of fishing line, which can entangle raptors.
 - Build nest boxes for American kestrels (formerly called sparrow hawks).
- Nest plans are available at www.MissouriConservation.org/8437.

- Support Missouri organizations like the World Bird Sanctuary in Valley Park (636-861-3225, www.worldbirdsantuary.org) and the Raptor Rehabilitation Project of the University of Missouri-Columbia (573-882-5972 or 888-850-2357, www.raptorrehab.missouri.edu). These organizations engage in conservation efforts and rehabilitate injured raptors, which are used in educational programs.



Bald eagle

JIM RATHER

RAPTOR FAQs

Will hawks eat my pets? This happens occasionally, but is unlikely, especially if you keep your pets close to home and don't allow them free run of the outdoors. Sometimes a hawk—especially an immature one—will swoop toward a dog or cat then veer away, realizing that the pet is too large to take as prey.

If we want to protect songbirds and game birds, shouldn't we get rid of some raptors?

No. The greatest threat to songbirds and game birds is destruction or degradation of habitat, not natural predators. Free-ranging and feral cats, which are non-native predators, are a far greater threat than raptors. Killing raptors could actually hurt populations of birds since raptors help control rodents and other small mammals that prey on ground-nesting birds. Moreover, it is illegal to kill any raptor.

Why is it illegal to keep a hawk feather or an eagle feather that I found in the woods?

It would be impossible to prove that the feather—or any other raptor body part—you found did not come from an illegally taken bird. The 1918 Migratory Bird Treaty Act, which originated between Canada and the U.S. in 1916 to protect migratory birds from “indiscriminate slaughter” by market hunters and others, protects more than 800 species of birds, including raptors.

What should I do if I find an injured hawk or eagle?

You can leave it where you found it and let nature take its course. You can also call your local Missouri Department of Conservation office for information about local raptor rehabilitators. These are licensed rehabbers who are permitted to work with birds of prey.

Do not feed the bird, give it water or move it until talking with a rehabber. Remember that raptors have sharp talons and powerful beaks. Even young or injured birds can hurt you if you handle them. For more information, visit the University of Missouri's Raptor Rehabilitation Project's Web site at www.raptorrehab.missouri.edu/injured.html.

What eats raptors? Raccoons, bobcats and coyotes will sometimes eat raptors that are on the ground, especially injured raptors or young rap-

tors that are learning to fly. Many animals, including raccoons, snakes and other birds, will eat raptor eggs. Larger raptors will eat smaller raptors. Also, some female raptors will kill and eat their mates or young if food is especially scarce.

What is a chicken hawk? When people use the term chicken hawk, they are probably referring to a red-tailed hawk because these are the hawks most readily seen. Red-tails eat a wide variety of prey, although not many birds. Cooper's hawks and sharp-shinned hawks prey almost exclusively upon small birds, and all three hawks may hunt chickens if given the opportunity.

What are the hawks that I see near my bird feeder? Cooper's, merlins and sharp-shinned hawks have adapted to wooded suburbs and are attracted to concentrations of small birds, including those around bird feeders. These hawks are swift and agile, able to catch birds in flight.

What are the large hawks I see perched along the highway? Those are most likely red-tailed hawks, the most abundant large hawks in Missouri. Grassy highway medians are ideal habitat for small rodents and snakes, which red-tails hunt from their perches in large trees or power line poles. When perched, red-tails appear to have a puffy white chest and a brown band of feathers at the belly. The characteristic red tail of the adults is often visible.

What are the small hawks I see hovering over the median along the highway? They are probably American kestrels. These small, colorful raptors perch on telephone wires or hover over grassy highway medians, quickly beating their wings before they dive to the ground to seize a grasshopper or mouse.

Do raptors mate for life? Many raptors form pair bonds, meaning they have one mate during their lifetime. This may be due to attachment of the birds to nest sites, rather than loyalty to each other. Both the male and female may bond to a successful nest site, and both return there and mate with each other. If one of the pair dies, the other often will take a new mate. Male harriers will mate with several females if prey is especial-

ly abundant, taking advantage of plentiful food to increase harrier populations.

How long do raptors live? In captivity, raptors—especially larger species—have lived 30 to 50 years in captivity, depending on the species. In the wild their typical life span is much shorter, ranging from about 5 to 20 years. This is due to periodic shortages of prey, severe weather, predators, competition and disease. Up to 70 percent of raptors die within their first year of life.

Some raptors in Missouri have died from West Nile virus, but not at levels that threaten their statewide populations. Raptors also become injured or die due to habitat loss, illegal shooting, baited traps intended for other animals, carelessly discarded fishing line, collisions with power lines and cars, and ingestion of toxic chemicals, including household pesticides, at dump sites.



A Fine Kettle of Hawks

While many raptors migrate solo, some, like broad-winged hawks, fly as a group called a "kettle." Kettles of hundreds of broad-wings have been seen in Missouri in late April and the third week of September, and kettles of tens of thousands of these birds migrate in spring and fall in the southern U.S., Mexico and Central America. Many raptors time their migrations with the migrations of prey, like migrating dragonflies, so they will have a readily available food source along the way. Because of raptor migration, more of them are usually seen in Missouri in spring and fall.

Why do they migrate? The short answer is "because they can." While some raptors stay in Missouri year-round, many fly to where food and nesting sites are more plentiful. For example, bald eagles summering in the northern states winter in Missouri where rivers and lakes are not frozen solid, so they can hunt and scavenge fish in open water. Broad-winged hawks winter in the tropics, but nest in Missouri and elsewhere in North America. This helps them avoid nesting competition further south. Harsh winters in Missouri can drive some raptors to Arkansas and further south.

VULTURES

Vultures differ from other raptors in that they rarely hunt prey, living primarily on carrion (dead animals). They feed their young regurgitated carrion instead of fresh meat. Vultures are well adapted to scavenge. Unlike most other birds, they have a keen sense of smell, assisted by the large hole in their beaks, which they use, along with sight and sound, to locate carrion. Their heads have no feathers, which helps keep the birds clean when feeding. They also are relatively immune to microbes found in rotten meat that can cause botulism and other diseases.

Vultures are voiceless except for hissing and grunting. They nest in sheltered areas, like caves along cliff faces. Black vultures sometimes follow turkey vultures, taking advantage of their keener sense of smell to locate carrion. Up to several hundred black and turkey vultures may roost together during migration.

Note: All bird lengths are from beak tip to tail tip.

Turkey Vulture

Cathartes aura

LENGTH—27 INCHES

WINGSPAN—70 INCHES

Turkey vultures often soar along bluffs or circle in a group above a night roost. They forage by flying across many rural acres in search of tasty smells wafting from below. They have a large black body and a small, red, naked head. From below, they are two-toned: wing-linings are dark and the trailing portion of the wings appears lighter. Turkey vultures often tilt from side to side while soaring, with the wings held in a V-position. Turkey vultures are common statewide in summer, and they winter in southern Missouri, the southern U.S. and Central America.

Raptor migration makes for great bird watching. The Missouri Department of Conservation offers programs every year to encourage Missourians to see bald eagles and vultures. Vulture Venture is held every year in February at Shepherd of the Hills Conservation Center at Table Rock Lake dam near Branson. Naturalists are on hand to answer questions. You may see up to several hundred black and turkey vultures soaring above nearby bluffs or sitting in their roost, which covers nearly an acre. For more information, call 417-334-4865. Eagle Days events are held at several locations around the state near eagle feeding areas in winter. For information about both events, go to www.MissouriConservation.org or call 573-751-4115.



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Black Vulture

Coragyps atratus

LENGTH—25 INCHES

WINGSPAN—58 INCHES

Black vultures are common in subtropical and tropical America, and some breed as far north as southern Missouri, where they reside from April through September. Occasionally they are seen as far north as central Missouri. Black vultures have a black head, and from below, the wings are mostly black with white patches at the tips. Black vultures often fly higher than turkey vultures and alternate between a series of three to four flaps and soaring.



Osprey

Pandion haliaetus

LENGTH—24 INCHES

WINGSPAN—66 INCHES

Sometimes called “fish hawks” or “fish eagles,” ospreys are usually seen in spring and fall flying over lakes and rivers where they hunt for fish. Immature ospreys sometimes splash clumsily into water as they hone their fishing skills. Most ospreys are seen in Missouri while migrating to or from Canada or the southern U.S. or Mexican coasts.

Today a handful of breeding ospreys reside here year-round, thanks to reintroduction efforts of captive-reared and -released (or hacked) birds in the 1990s. Reintroduced birds were released into the wild from hacking towers, and in 2000, the first nest and young were observed at Truman Lake. Since then, these birds have been building their huge stick nests in trees and on special nesting platforms, utility poles and even cell phone towers near large bodies of water around the state. Before these reintroduction efforts, the last time osprey nested in Missouri was in 1884.

In flight, osprey hold their wings with a distinct crook at the “elbow,” so the birds resemble the letter M. From above, wings are dark brown; from below, wing linings are white and trailing wings are contrastingly dark. Ospreys have no bony projection above the eye.





Bald Eagle

Haliaeetus leucocephalus

LENGTH—36 INCHES

WINGSPAN—84 INCHES

There is no mistaking a mature bald eagle: Both males and females have a distinct white head and tail, brown body and wings, and a large yellow beak. For the first three years, though, immature eagles are dark brown with varying amounts of white on the underside of the wings. These young birds can be confused with immature golden eagles, which have darker wing linings than immature bald eagles.

In flight, bald eagles hold their wings straight and flat. While the number of year-round resident birds in Missouri continues to increase, most wintering bald eagles here return to their breeding grounds in the northern U.S. and Canada in spring.

Bald eagle nests, up to 7 feet across and 10 feet deep, are the largest in the bird world. Made of sticks and constructed in sycamores, cottonwoods and bald cypress trees, the nests are used year after year by the same birds. Bald eagles eat mostly fish, but also consume mussels, crayfish, waterfowl, rabbits, muskrats and turtles. In addition, they feed on carrion and may even forage in dumps.



Golden Eagle

Aquila chrysaetos

LENGTH—37 INCHES

WINGSPAN—86 INCHES

Golden eagles do not live in Missouri year-round but winter here in small numbers. Adults are recognizable by their large size, immense wingspan, brown body and the golden sheen of the feathers on the crown and back of the head. Immature birds have brown and white underwings, with darker wing linings than immature bald eagles, and the base of their tail is bright white with a dark brown tip. Golden eagles have feathered legs.

Unlike bald eagles, which are usually found near water, golden eagles hunt in open grasslands for a wide variety of prey, including rabbits and other small mammals and birds. In flight, golden eagles resemble turkey vultures, soaring with their wings slightly raised.

Mississippi Kite

Ictinia mississippiensis

LENGTH—15 INCHES

WINGSPAN—36 INCHES

The kites' swallow-like gliding and diving flight enables these insect-eating raptors to hunt for prey on the wing, often in foraging flocks of more than 25 birds. Kites sometimes hunt for small birds and other small animals from exposed perches.

Mississippi kites are summer residents in Missouri. They feed and nest in bottomland forests, mainly along the Mississippi River and in scattered forested areas in western Missouri. Formerly seen only in southeastern Missouri, Mississippi kites have expanded their range and numbers and are now seen in the St. Louis and Kansas City areas. The reduction of DDT and other chemicals in the natural environment may be a factor in the kites' population growth.

Adults have a light gray body, whitish head and black tail. As seen from above, wings of adults are three shades of gray. Immature birds are heavily streaked underneath.



Northern Harrier

Circus cyaneus

LENGTH—18-22 INCHES

WINGSPAN—40-47 INCHES

If you see a raptor soaring low over a prairie, marsh or hay field in winter, you are likely seeing a northern harrier, formerly known as a marsh hawk. Harriers rarely nest here, and with so little native prairie or open wetlands remaining in Missouri, they are rather uncommon in winter. Harriers almost skim the ground as they hunt, and descend feet first to capture rodents, birds, insects, snakes and other prey.

Males and females differ dramatically in appearance: Mature males are gray above and white below while females are brown and streaked below. Harriers have a disc-shaped face, which helps them locate prey by sound, much like owls. Harriers also are one of few raptors to nest on the ground, laying a clutch of four to seven eggs.



BUTEOS

The buteo group of hawks are stocky birds with broad wings, making them well adapted for soaring in open country. Buteos seen in Missouri have relatively short, broad tails, which are fan-shaped in flight.



Swainson's Hawk

Buteo swainsoni

LENGTH—21 INCHES

WINGSPAN—52 INCHES

The Swainson's hawk winters in South America and summers in the western U.S., occasionally residing in western Missouri during the warm months. They nest in and around Springfield, Mo. and into the Osage Plains, and a few are in northwestern Missouri. A Swainson's hawk can be distinguished from a red-tailed hawk by its relatively slim body, its dark chestnut breast and all-brown back feathers. From underneath, it has white wing linings that contrast with its darker, barred wings. It hunts for rodents, birds, snakes, insects and other prey over prairies or crop field stubble by circling like a vulture.

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Red-Tailed Hawk

Buteo jamaicensis

LENGTH—22 INCHES

WINGSPAN—50 INCHES

Due to its aggressive hunting abilities, great variety of prey and ability to adapt to many different habitats, the red-tailed hawk is the most abundant hawk in North America. Its high-pitched scream is familiar too, as it is the typical raptor call played in movies. Adult birds usually are easy to identify. They are brown from above, nearly uniformly white/light streaked below, with a brown band of feathers at the belly, and they have a reddish tail. Immatures can be harder to identify. They are similar to adults, but the tail is brown with narrow dark bars.

Darker and lighter color variations exist in red-tailed hawks (color morphs), but they do have reddish tails. During the winter, red-tailed hawk subspecies (dark Harlan's hawk and the pale Krider's red-tailed hawk) can be present, too, so carefully study bird field guides for correct identification. There are also several individuals of partial or completely albino red-tailed hawks in Missouri.



Red-Shouldered Hawk

Buteo lineatus

LENGTH—19 INCHES

WINGSPAN—40 INCHES

If you hear a high-pitched *KEyar-KEyar-KEyar* call, look up. You are likely hearing a red-shouldered hawk, or a blue jay, which imitates hawk calls. Red-shouldered hawks nest and feed along forested streams and rivers. Canoeists often see them soaring above streams. Although they are more likely to be seen in the Ozarks and Mississippi Lowlands, red-shouldered hawks live throughout the state—even in suburbs with wooded draws. Migrating birds from the north increase the numbers seen in winter. Adults are striking in appearance, with black and white barring on wing feathers and tail, rounded wing tips and rusty shoulders.





Broad-Winged Hawk

Buteo platypterus

LENGTH—16 INCHES

WINGSPAN—33 INCHES

The smallest of the buteos in Missouri, broad-wings may nest and breed in forested regions of the state, especially in the Ozarks and Ozark Border regions, but are more commonly seen during migration. In flight, the underside of adult birds is light-colored, with the wings bordered in black all the way to the tip, which tapers to a point. Broad-wings are one of the few North American raptors that flock during migration. Kettles of hundreds of these hawks are sometimes seen in Missouri in late April and the third week of September, and kettles of tens of thousands of birds can be seen during migration in the southern U.S., Mexico and Central America.



Rough-Legged Hawk

Buteo lagopus

LENGTH—22 INCHES

WINGSPAN—56 INCHES

Rough-legged hawks nest on cliffs in the far northern Arctic, and are occasionally seen in Missouri during the winter, when the birds migrate to the northern U.S. In Missouri, these large hawks hunt in open grasslands and crop fields, soaring with their long wings slightly uptilted, or perching in small trees. During years when their prey to the north decreases, more birds are likely to be present in Missouri. This hawk gets its name from its feathered legs—all the way to the toes. There are light and dark color morphs of these hawks, which can be identified by their tail bands. Its strong but small feet are adapted for hunting small rodents.

ACCIPITERS

Unlike most buteos, accipiters mainly frequent wooded areas. They have shorter, rounded wings and longer tails. This body form allows them to weave in and out of tree branches and brush in pursuit of prey. They often capture other birds—their main prey—in flight. Accipiters are most abundant during spring and fall, when songbirds are migrating. Accipiters are becoming more common in Missouri, probably due to the reduction of long-lived pesticides in the environment. Bird feeders apparently play a role in accipiter abundance, as well, by attracting a concentration of bird prey.

Sharp-Shinned Hawk

Accipiter striatus

LENGTH—11-14 INCHES

WINGSPAN—22-28 INCHES

Sharp-shinned hawks look like smaller versions of Cooper's hawks. They differ in the following ways, however: The sharp-shin's tail is squared off at the tip, rather than rounded, and has a slate-gray head and neck, in contrast to a Cooper's black cap of feathers. A sharp-shin's flight is less direct than a Cooper's, and both alternate flapping and sailing. Sharp-shinned hawks occupy the same habitat as Cooper's, but rarely reside in Missouri year-round. Sharp-shins are most often seen here during migration and in winter.



JIM RATHER



Cooper's Hawk

Accipiter cooperii

LENGTH—15-18 INCHES

WINGSPAN—30-36 INCHES

Cooper's hawks reside in Missouri year-round, but little is known about their nesting success. Cooper's hawks mainly hunt in forests, but are increasingly common in wooded suburban and urban areas and will perch on telephone poles as well as trees. If you see a crow-sized hawk near your bird feeder, chances are it is a Cooper's hawk, hunting for songbirds. Adult Cooper's hawks have blue-gray wings above, and are sometimes called blue-darters. From below, they have horizontal, rusty barring. Their black-and-white barred tail is rounded at the tip.



Northern Goshawk

Accipiter gentilis

LENGTH—21-25 INCHES

WINGSPAN—40-46 INCHES

These large accipiters live year-round in the extreme northern U.S., Canada and western states. They are rarely seen in Missouri, but venture here in winter when hare populations are scarce. They hunt in hedgerows, along tree lines and sometimes in urban areas. They are about the same size as a red-tailed hawk, but in flight their wing tips appear more tapered. Northern goshawks have a distinct white "eyebrow," and adults are gray above and light gray below. In the photo at left, the Northern goshawk is molting into alternate adult plumage.

FALCONS

Falcons are overall the smallest and fastest group of raptors. They have pointed, angled wings and are master flyers.

American Kestrel

Falco sparverius

LENGTH—9-11 INCHES

WINGSPAN—20-23 INCHES

Formerly called sparrow hawks, American kestrels are the most common falcon in North America. In Missouri, they reside year-round in open countryside and urban areas. They are most likely to be seen in spring and fall, hovering over grassy highway medians before they dive to the ground to seize prey. Adult males are the most colorful raptor in North America. They have a bright, rusty back and tail, bluish-black wings, orange-brown breast, blue and rusty head, and dark and light barring on the neck. Rather than building nests in the open, in trees or atop platforms or cliffs, like other raptors, American kestrels nest in cavities, in eaves of buildings or in kestrel nest boxes.

The use of eagles, falcons, hawks and other raptors in falconry, which is the difficult and highly regulated sport of hunting wild game with trained raptors, has been practiced for thousands of years and continues today in Missouri and around the world. For more information, contact the Missouri Falconer's Association (www.missourifalconersassociation.org).





Peregrine Falcon

Falco peregrinus

LENGTH—15-21 INCHES

WINGSPAN—38-45 INCHES

Peregrines are the fastest living animal. While pursuing bird prey, they can dive at speeds up to 200 miles per hour! Peregrines are uniformly white and dark narrow-barred below and gray-blue above. They live everywhere except Antarctica, but are rather uncommon worldwide. The last known cliff nesting of a peregrine in Missouri was in 1911.

Once threatened with extinction, in part due to DDT, they have made a remarkable comeback. In the 1990s, several organizations in Missouri reintroduced peregrines from other states, and hacking programs took place in St. Louis, Kansas City and Springfield. Hacked birds were released from balconies of tall buildings, which mimicked the birds' natural cliff dwellings. There are now a handful of nesting peregrines in St. Louis and Kansas City. Peregrines are sometimes seen in these urban areas, diving after pigeons and other urban birds, and eating them on office or apartment window ledges. In recent years, utility companies hacked peregrines in the New Madrid and Thomas Hill areas.



Merlin

Falco columbarius

LENGTH—10-12 INCHES

WINGSPAN—22-25 INCHES

If you see a merlin in Missouri, it will most likely be in the winter. Small numbers of these falcons reside here statewide during the cold months, foraging for prey in grasslands and crops fields near woodlands. Merlins also chase flocks of birds, often taking the weakest bird. They also fly low over the ground in a zig-zag pattern with rapid wing beats. Adult males are blue-gray above and white/brown streaked below. Females and immature birds are brown above. All birds have a light "eyebrow" and a dark tail with narrow light bands.

Prairie Falcon

Falco mexicanus

LENGTH—16-19 INCHES

WINGSPAN—38-43 INCHES

Only rarely seen in northwest Missouri, prairie falcons live in the western U.S. and southern Canada but sometimes venture to Missouri's floodplains and open grasslands in winter. From below, prairie falcons have light wings with darker markings at the wing bases. From above, they are uniformly brown. Prairie falcons are aggressive and excitable and will harass larger hawks and eagles. They prey upon birds and small mammals by flying rapidly close to the ground.



FOTOLIA.COM

Want to learn more?

- Numerous articles on raptor species are available online at www.MissouriConservation.org.
- Join a local Audubon chapter.
- Consult raptor reference materials at a Conservation Nature Center. To find a list of MDC nature centers, visit www.MissouriConservation.org/18150.
- Visit the World Bird Sanctuary at 125 Bald Eagle Ridge Road, Valley Park, MO 63088 (636-225-4390 or www.worldbirdsantuary.org). The World Bird Sanctuary's mission is to preserve the earth's biological diversity and to secure the future of threatened bird species in their natural environments. The sanctuary fulfills its mission through education, captive breeding, field studies and rehabilitation.



Northern Harrier

References

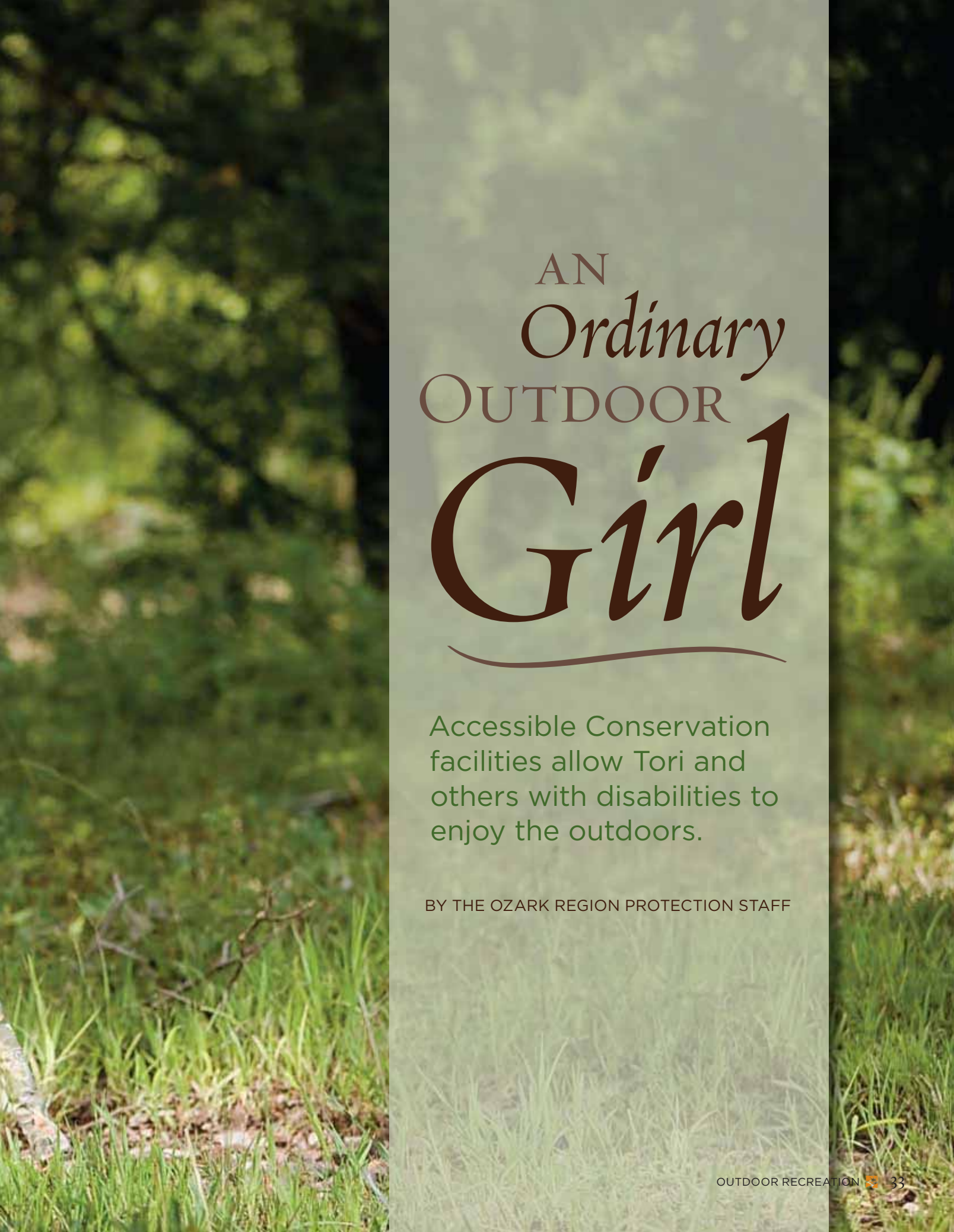
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DAVID STONNER



AN Ordinary OUTDOOR *Girl*

Accessible Conservation facilities allow Tori and others with disabilities to enjoy the outdoors.

BY THE OZARK REGION PROTECTION STAFF

My wife returned from a trip to town recently and told me she'd bumped into the McAfees at the store and that their daughter, Tori, told her to be sure to remind me of the National Wild Turkey Federation banquet the following Saturday night.

I smiled at the thought that a 9-year-old girl was committed enough to her local NWTf chapter to remind her county conservation agent of its upcoming banquet, and regretted not being able to attend because I had to go somewhere else that night.

A couple of weeks later I was working a Conservation Department booth at an outdoor sports show in West Plains, and was talking to someone when I saw Tori's mother come in the door. A few seconds later, I spotted Tori standing next to her. She was looking directly at me to catch my eye. I made a goofy face, and Tori returned the favor.

A bit later, I walked over and said, "Where's my hug?"

Although Tori McAfee was born with spina bifida and wears crutches to get around, she is still able to enjoy outdoor activities with her father (below with Tori) and mother.

When Tori lifted her arms and said, "Well, right here, Bud," I hardly noticed the crutches on her arms or the braces on her legs. We visited a minute before I had to return to work the booth.

Personal challenges

Tori was born with spina bifida. She has undergone two surgeries and has a shunt to help her body deal with fluid build-up. Tori goes to St. Louis for check-ups every six months. Although Tori has braces on both legs she is able to get around pretty well with crutches. The twice-weekly trips she and her family make to West Plains for both physical and aquatic therapy have obviously helped strengthen her legs.

Tori is in the fourth grade at Winona Elementary School. She admits to not liking the "pile of homework" she gets on the two days a week she leaves school early to go for her physical and aquatic therapy and to sometimes giving her parents, "especially Dad," a hard time. She says she wants to be a dancer, a doctor or a waitress when she grows up.

In other words, Tori is just an ordinary girl. When I sat down with her and her parents, Margaret and Troy, that's what she most wanted people to know about her. She said, "Tell them I'm just like everyone else and can do everything they do, just maybe in a different way."

Tori loves the outdoors. She's a Jakes member of the Current River Callers Chapter of the NWTf. She took her first turkey, an adult gobbler, during the 2007 Spring Turkey season. A life-sized mount of the turkey is proudly displayed in the family home.

Tori is also a deer hunter. She shot her first deer—a button buck—during the 2006 Youth Season, then took a 6-point buck during the 2007 Firearms Season. "First Turkey" and "First Deer" certificates issued by the Conservation Department hang in the family living room near a picture of 4-year-old Tori with her first fish, a 2-pound spotted bass. It's her father's favorite picture.

Family adventures

Hunting and fishing "success" to the McAfees doesn't require taking an animal. Tori had fallen and broken a leg before the 2005 Youth Deer season opened. Even though she was confined to a wheelchair with her leg in a cast, she still managed to hunt.

Margaret wheeled Tori into a hunting blind large enough for the three of them. Hunting blinds help conceal movement but do little to quiet noise. The McAfee family admitted to being noisy enough to spook an incoming buck, which Tori subsequently missed. The family enjoyed the outing, though. "We have so much fun it's ridiculous," Troy said.



PHOTO SUBMITTED BY MCAFEE FAMILY



Troy said deer hunting didn't really pose any problems for Tori because they usually can get on a good stand location and wait for the deer to come to them. Turkey hunting is a bit more challenging, especially on public land, as it is often necessary to move to a turkey's location.

"We always find a way, though," Margaret said.

Troy has modified an electric golf cart to address the mobility issue, and the family tends to turkey hunt more on private lands so that they won't bother other hunters.

To help them "find a way," the Conservation Department is committed to making its programs, services and outdoor resources accessible to everyone. Although it cannot guarantee such access to all its sites and properties, the Department is working throughout the state to remove barriers that prevent persons with disabilities from enjoying the outdoors. The effort includes constructing facilities and renovating older ones to provide better access to Department areas, buildings and shooting ranges.

Accessibility features available at specific Conservation Areas are listed in the Department booklet *Disabled-Accessible Outdoors*. The booklet is available online at www.MissouriConservation.org/2293 or write to MDC, *Disable Accessible Outdoors*, PO Box 180, Jefferson City, MO 65102 or e-mail pubstaff@mdc.mo.gov. The above Web address also allows you to quickly find areas that have facilities accessible to people with disabilities.

Conservation Department regulations also allow some hunting method exemptions, such the use of a crossbow

Although Tori's mobility poses a challenge while hunting and fishing, her family works hard to ensure any outdoor activity is still possible.

in lieu of a longbow and hunting from a stationary vehicle, that allow people with disabilities to participate in outdoor recreation. Contact your local conservation agent for details or applications.

Ordinary girl

It may require a little extra effort for Tori to enjoy the outdoors, but her family helps her in every way it can, and accessible Conservation Department lands and facilities give her a chance to follow her "calling" and hunt and fish to her heart's content.

Even though the McAfees take unusual steps to help Tori, they are pleased to have the opportunity. "Tori has been a very pleasant child to raise," Margaret said toward the end of our conversation. "She's just got a positive attitude every day, and she loves people."

If you happen to find yourself in the Shannon County area and spot a beautiful young lady getting around with braces and crutches, introduce yourself. Keep in mind though, she might try to sell you a ticket for an NWTF fundraiser or tell you about her most recent hunting or fishing trip. That's the way Tori is—just an ordinary outdoor girl. ▲



Annual Report

FISCAL YEAR 2007-2008

MISSOURI
DEPARTMENT of
CONSERVATION

This summary of the Annual Report highlights the Conservation Department's accomplishments and expenditures from July 1, 2007, through June 30, 2008. These accomplishments are based on the nine goals established in *The Next Generation of Conservation*.



HEALTHY FORESTS

New guidelines help MDC manage forests

MDC is revising and refining the way it manages forests. The Forest Land Action Guidelines help natural resource managers evaluate, understand and sustainably manage Missouri's forest and woodland communities.

Master Logger Certification

MDC helped develop the Missouri Master Logger Certification program. We awarded a \$20,000 grant to the Missouri Forest Products Association to help start this volunteer program, where a logger agrees to uphold the standards set by the program. The state's fish, forest, wildlife, soils, water and air will be better protected when harvesting is done by certified loggers.

Monitoring forest health

The Forest Health Program is a cooperative effort between MDC and other state and federal agencies to conserve Missouri's forest resources by monitoring and evaluating

forest health and providing forest health management information to Missouri residents. Monitoring activities document and evaluate ongoing threats to forest health.

CLEAN WATER

Stream Team

The Missouri Stream Team program continued to grow. There are more than 3,700 teams whose volunteers spent 197,460 hours working on their adopted streams. Since the program began in 1989, volunteers have spent more than a million hours protecting and improving Missouri streams.

Stream Stewardship Trust Fund

The Stream Stewardship Trust Fund is available to restore, enhance and/or protect stream systems and associated riparian habitats. The program and funds are administered by the Missouri Conservation Heritage Foundation, and MDC staff apply for grants. In FY08, seven projects costing \$467,000 were approved to protect 65.8 acres of stream channel and 133.5 acres of riparian corridor.

Effective contaminant monitoring

MDC initiated discussions with the Missouri departments of Natural Resources and Health and Senior Services to explore ways to more efficiently collect key fish-contaminant information. Through cooperation on fish collection and sample analysis, we have increased the amount of information collected, with no increase in cost to the public. We also have shortened the time it takes to get this information to the public in the form of fish consumption advisories.



COMMUNITY CONSERVATION

Volunteer fire departments

MDC, in cooperation with the U.S. Forest Service, provided more than \$376,748 in grants to more than 183 volunteer fire departments. These grants help fund protective clothing, equipment and training.

Meat donation program

Conservation agents coordinate and support the Share the Harvest program with the Conservation Federation of Missouri, local charitable organizations and local meat processors. During FY08, approximately 5,569 hunters donated 260,908 pounds of venison.

Community Assistance Program

Through the Community Assistance Program (CAP) and the closely related Corporate and Agency Partnership Program (CAPP), MDC enters into agreements (usually 25-year) with cities, counties, state and federal agencies, businesses, foundations, schools and colleges to provide fisheries management at existing lakes and ponds, and to cooperatively develop and maintain facilities for anglers and boaters at lake and stream areas. MDC has agreements with 118 partners for the cooperative management of 158 public lakes (9,634 acres of water), 42 stream-access areas, four lake-access areas and six aquatic resource education ponds.



PLANTS & ANIMALS

Quail and grassland-bird habitat

The status of quail, prairie chicken and other grassland bird populations and efforts to reduce their decline remain top MDC priorities. The Department completes approximately 70,000 acres of quail and grassland-bird friendly habitat work on conservation areas each year.

Natural communities

We are emphasizing the restoration and management of productive natural communities. We actively managed habitat on 20,607 acres of grassland/prairie, 37,745 acres of

marsh/wetlands, 11,026 acres of glades, 48,223 acres of forest, 18,084 acres of savannas and 18,539 acres of old field.

River basin management

Staff participated in working groups to implement ecosystem-based management necessary for the conservation and enhancement of natural and recreational resources of the Missouri, Mississippi and White rivers. They helped direct the implementation of \$54 million available through the Missouri River Fish and Wildlife Mitigation Project for habitat restoration, \$16.8 million available through the Mississippi River Environmental Management Program (EMP) for biological monitoring and habitat restoration, and \$10 million available for planning efforts within the proposed Mississippi River Navigation and Ecosystem Restoration Program.

The Statewide Conservation Genetics Program

The productivity and survival of Missouri's plants and animals depend on genetic diversity. Through DNA analysis, rare species can be protected, fishing can be improved, hatchery strains can be selected and species can be restored. DNA often can be used to identify species, sources and sometimes "parents" of animals and plants. Examples of species studies include black bass, shortleaf pine and hellbenders.



OUTDOOR RECREATION

New youth fishing program begun

GO FISH! staff and volunteers taught fishing and environmental stewardship to St. Louis children through 249 programs. Free fishing equipment was given to more than 2,200 anglers after successful completion of programs.

Helping more Missourians enjoy the outdoors

Both the Hunting Method Exemption Program and the Group Fishing Program are designed to assist disabled hunters and provide opportunities for educational or rehabilitation groups to experience fishing. During FY08, we issued 3,055 hunting method exemptions to help disabled hunters. We also issued 260 group-fishing permits to help Missourians who otherwise might not be able to participate and learn about outdoor fishing.

Missouri National Archery in the Schools Program

MDC—in collaboration with the Conservation Federation of Missouri—is the Missouri coordinating agency for the NASP. By the end of 2008, more than 40 Missouri schools will have adopted this program in fourth- to 12th-grade physical-education classes. Many of these schools received reimbursement grants up to \$500 toward NASP-approved archery equipment, and more than 5,500 students experienced the program.

New hunters and anglers

Staff and volunteers provided more than 1,500 instructional programs in hunting, fishing, trapping and shooting sports to more than 45,000 people. We offered more than 1,000 Hunter Education classes, certified 25,288 students and piloted an online Hunter Education training module.



PLACES TO GO

Public lands equestrian use

Horse riding is a popular form of recreation. We developed a joint statewide mail survey of horse-riding enthusiasts in cooperation with the Missouri Department of Natural Resources, National Parks Service and the U.S. Forest Service. It was mailed to Missouri horse owners and handed out to riders at major trail rides and through outfitters. Results will help to develop a plan for equestrian use on public lands in the state.

Land management

MDC conducted habitat management activities on approximately 180,000 acres of public land. Staff spent nearly 323,862 hours on area maintenance.

Adopt-A-Trail

Adopt-A-Trail volunteers monitor, maintain and help to enhance trails and trailheads. In FY08, volunteers spent 963 hours on conservation-area trails.



CONSERVATION EDUCATION

“Discover Nature—Schools” launched

To make our educational offerings more recognizable, programs for families, women and schools will be known under the “Discover Nature” umbrella. The new middle-school unit for that program was launched statewide. Seventy-one schools with 3,041 students received grants to participate. Field trip grants helped 22,204 students at 194 schools get outdoors. Outdoor Classroom grants were awarded to 27 new schools. Grants to schools exceeded \$202,000.

Twin Pines Conservation Education Center

Twin Pines Conservation Education Center in Shannon County opened this year. It places a special emphasis on the history of the Ozarks’ timber industry. Displays there include vintage logging equipment, a log cabin and an early 20th century schoolhouse.

Helped citizens discover, use and enjoy the outdoors

More than 1 million visitors experienced our conservation nature centers and shooting-range/outdoor-education centers.

These facilities offered a wide variety of programs, with more than 300,000 participants.



LANDOWNER ASSISTANCE

Financial assistance

Nearly \$1.18 million in cost-share funds went to 634 private landowners to implement habitat management practices for fish, forest and wildlife. The funds helped install 1,104 conservation practices, impacting nearly 40,000 acres.

Partnerships support landowners

Staff developed 35 partnerships with federal, state and non-governmental organizations. These partnerships helped MDC enhance technical and financial assistance and equipment support to landowners interested in improving fish, forest and wildlife resources. One example is MDC assisted Missouri USDA with developing and applying \$150 million in Farm Bill conservation programs.

Technical assistance

MDC provided timely and responsive service through 41,308 rural and urban landowner contacts, including 16,987 on-site visits. Landowners were assisted with habitat management plans. Staff also answered 5,025 requests for wildlife nuisance and/or damage assistance, including 1,005 on-site visits.

ACCOUNTING FOR DEPARTMENT OPERATIONS

Listened to Missourians

We employ a variety of scientifically sound measures to assess public opinions, expectations and recreation participation. This information guides decisions about regulations and fish, forest and wildlife management. In FY08 there were 58 activities that involved 92,365 people, which included public information surveys, focus groups and public meetings.

Tracked strategic plan accomplishments

This was the second fiscal year of tracking accomplishments of *The Next Generation of Conservation*, MDC’s strategic plan. The plan identifies nine goals, 28 results and 61 specific actions that MDC will work with Missourians to achieve. New developments include the ability to generate reports showing annual and cumulative accomplishments.

Internal audit reports

Internal auditors performed seven internal audits to ensure that public funds were expended in a responsible manner. There were no major findings.

What the Money Bought—Fiscal Year 2008

County Assistance Payments—\$1,451,829 Included payments to Missouri's counties for levee and drainage district taxes, forest cropland payments, payments in lieu of real estate taxes and county aid road trust payments. Since 1980, more than \$13.11 million has been paid to Missouri counties in lieu of taxes.

Capital Improvements—\$16,165,002 Work included fish hatchery improvements, river access development, wetland renovations, shooting range construction, development of nature centers, land acquisition transactions and renovation and repair of facilities statewide.

Fisheries—\$12,444,886 Maintained and improved sport fish populations, aquatic biodiversity and aquatic habitats. Managed 906 lakes and 40 stream management areas for public fishing, and provided stream and lake management assistance to over 8,600 private landowners. Stocked more than 11 million fish in public lakes and streams.

Forestry—\$16,071,586 Fostered a healthy and growing forest resource. Examples include distributing 5 million seedlings for planting to nearly 12,400 landowners, provided forestry assistance on over 50,000 acres and facilitated EQIP projects totaling over \$725,000 on private land, managing 438,700 acres of public forest land, monitoring insect and disease threats and facilitating development of the state's forest industry.

Wildlife—\$16,640,868 Worked toward ensuring wildlife populations are in harmony with habitat and human enjoyment. Managed more than 525,000 acres of public land and implemented programs to maintain and restore natural communities and wildlife diversity across Missouri's landscape.

Outreach and Education—\$15,412,405 Sustained and nourished Missourians' connection to the outdoors through more than 1 million visitors to conservation nature centers and shooting-range/outdoor-education centers, nearly 500,000 subscribers to the *Missouri Conservationist* magazine, web-based information, grants to schools exceeding \$202,000, conservation curriculums for schools, outdoor skills programs and hunter education.

Private Land Services—\$8,992,253 Helped private landowners to achieve long-term conservation of natural resources and their land-use objectives. Delivered nearly \$1.2 million in cost-share funds to private landowners; provided on-site technical assistance to 10,602 private landowners; improved habitat for quail and grassland songbirds on more than 27,000 acres of private land; helped landowners enroll almost 2,415 acres into the Wetland Reserve Program; and assisted 5,025 private landowners in controlling nuisance wildlife.

Protection—\$13,879,942 Paid for law enforcement in every county as well as resource management, information, education and public service contact activities conducted by 167 conservation agents who directly contacted more than 675,000 people. Coordinated the Share the Harvest Program where more than 5,500 deer hunters donated more than 260,000 pounds of venison to less fortunate Missourians. Conservation agents, along with 1,788 volunteer instructors, conducted 968 hunter education classes, certifying 25,288 students.

Resource Science—\$11,677,559 Provided the science-based information needed to effectively manage Missouri's natural resources. Resource Science monitors the status of Missouri's fish, forests, plants and wildlife, recommends conservation actions, evaluates these actions and reports the results. In addition to surveys of fish and wildlife, tens of thousands of Missourians were contacted to determine their outdoor activities and opinions about conservation programs.

Regional Public Contact Offices—\$3,199,101 Provided regional public contact offices.

Administrative Services and Human Resources—\$36,009,544 Paid for human resources, federal reimbursement administration, hunting and fishing permit point-of-sale system, fiscal services, distribution center, print shop, fleet management, vehicle and equipment maintenance centers and information management and technology. Also includes other agency appropriations, Department-wide equipment and other essential services.

Design and Development—\$12,149,619 Provided engineering, architectural, surveying and construction services for conservation programs and maintenance of conservation areas and facilities.

Administration—\$3,198,077 Paid for audits, legal counsel and the coordination of strategic planning, environmental policy development, cultural resource reviews, public involvement and river basin management.

RECEIPTS

Conservation Sales Tax	\$102,940,809
Permit Sales	\$30,797,567
Federal Reimbursements	\$18,563,048
Sales and Rentals	\$7,998,158
Other Sources	\$9,897,979
Interest	\$1,755,844
Total Receipts	\$171,953,404

DISBURSEMENTS

County Assistance Payments	0.87%
Capital Improvements	9.66%
Fisheries	7.44%
Forestry	9.61%
Wildlife	9.95%
Outreach and Education	9.21%
Private Land Services	5.38%
Protection	8.30%
Resource Science	6.98%
Regional Public Contact Offices	1.91%
Administrative Services & Human Resources	21.52%
Design and Development	7.20%
Administration	1.91%

MISSOURI STATE BUDGET

Health & Social Services	36.7%
Education	28.5%
Government Services	21.6%
Transportation	10.0%
Natural & Economic Resources	2.5%
Conservation	0.7%
<i>MDC represents less than 1% of the total state budget</i>	
Total State Budget	\$22,238,018,423

Hunting and Fishing Calendar

FISHING

	OPEN	CLOSE
Black Bass (certain Ozark streams, see the <i>Wildlife Code</i>)	5/24/08	2/28/09
impoundments and other streams year-round		
Bullfrogs and Green Frogs	Sunset	Midnight
	6/30/09	10/31/09
Gigging Nongame Fish	9/15/08	1/31/09
Trout Parks Catch and Release	11/14/08	2/9/09
Friday–Monday at Bennett Spring, Montauk and Roaring River and daily at Maramec Springs		

HUNTING

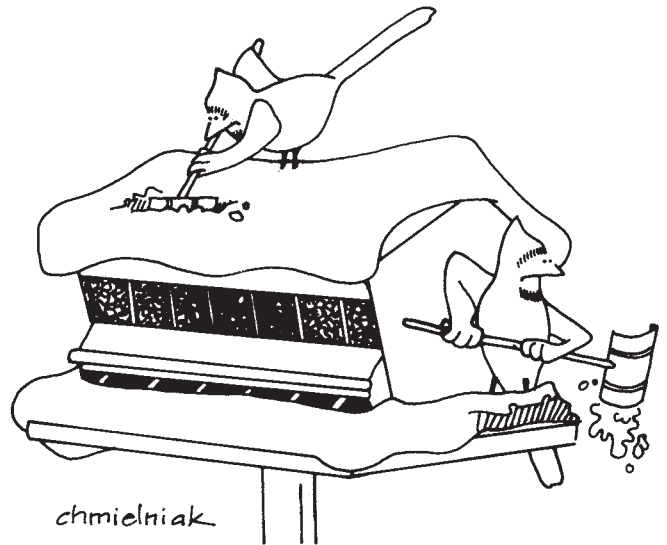
	OPEN	CLOSE
Coyotes	5/12/08	3/31/09
Crow	11/1/08	3/3/09
Deer		
Archery	11/26/08	1/15/09
Firearms		
Youth	1/3/09	1/4/09
Furbearers	11/15/08	1/31/09
Groundhog	5/12/08	12/15/08
Pheasants		
North Zone	11/1/08	1/15/09
Quail	11/1/08	1/15/09
Rabbits	10/1/08	2/15/09
Ruffed Grouse	10/15/08	1/15/09
Sora and Virginia Rails	9/1/08	11/9/08
Squirrels	5/24/08	2/15/09
Turkey Archery	11/26/08	1/15/09
Waterfowl	please see the <i>Waterfowl Hunting Digest</i> or see www.missouriconservation.org/7573	
Wilson's (common) Snipe	9/1/08	12/16/08

TRAPPING

	OPEN	CLOSE
Beaver and Nutria	11/15/08	3/31/09
Furbearers	11/15/08	1/31/09
Otters and Muskrats	11/15/08	see <i>Wildlife Code</i>

For complete information about seasons, limits, methods and restrictions, consult the *Wildlife Code* and the current summaries of *Missouri Hunting and Trapping Regulations* and *Missouri Fishing Regulations*, the *Fall Deer and Turkey Hunting Regulations and Information*, the *Waterfowl Hunting Digest* and the *Migratory Bird Hunting Digest*. For more information visit www.MissouriConservation.org/8707 or permit vendors.

The Department of Conservation's computerized point-of-sale system allows you to purchase or replace your permits through local vendors or by phone. The toll-free number is 800-392-4115. Allow 10 days for delivery of telephone purchases. To purchase permits online go to www.wildlifelicense.com/mo/.



Contributors



CAROL DAVIT, who lives in Jefferson City, has written about and promoted conservation issues since 1997. She is the communications specialist for the Missouri Conservation Heritage Foundation and the editor of the *Missouri Prairie Journal*. Carol and her husband, Mike Leahy, love being outdoors with their son, Jamie, and they enjoy seeing raptors and all other birds.

THE OZARK REGION PROTECTION STAFF invites you to visit the disabled-accessible facilities in that region. Those include hunting blinds on three areas, fishing facilities on six areas, trails on two areas, and shooting or archery ranges and/or outdoor education centers on six areas. For a listing of the specific locations, please see the Department booklet *Disabled-Accessible Outdoors* referenced in this month's issue.

OPERATION FOREST ARSON

If you see or learn
of someone deliberately
setting a fire,
please dial toll-free:

1-800-392-1111

TIME CAPSULE

January 1999

The Big Chew was written by Joel Vance about Missouri beavers. Beavers are one of the least visible and most common animals. An adult beaver can weigh 40 to 60 pounds and is the largest rodent in North America. Beavers have four front gnawing teeth that grow continually, keeping “chisel-like” edges. Because of their oversized liver and large lungs they can stay under water for up to 15 minutes. Female beavers usually have four young per year and their lifespan can be up to 12 years. Landowners sometimes consider these furbearer a nuisance because of the damage they can do to their trees and ponds.—Contributed by the Circulation staff



AGENT NOTES

Attend an Eagle Days event near you for fun with the family.

AS IS THE case with many of Missouri’s wildlife species, the “good old days” for bald eagles are right now! Not many years ago there were no known nesting pairs of eagles in Missouri, but that all began to change in the 1980s with the raising and releasing of a few young bald eagles around the state. From these meager beginnings, Missouri now can boast of almost 150 nesting pairs.



In addition to the nesting birds, Missouri commonly hosts more wintering bald eagles than any other state. These are birds that migrate south to find open water as winter progresses. The birds need open water so they have access to their main source of food, which is fish. Waterfowl also comprise a portion of their diets. Now is an excellent time to see bald eagles in Missouri.

The Missouri Department of Conservation helps to coordinate “Eagle Days” events across the state. These events usually consist of an indoor educational program, including a captive bald eagle, and an outdoor eagle viewing area where visitors can observe bald eagles. Be sure to dress for the weather. Spotting scopes are provided at the viewing areas so you can get a close look at these fascinating birds. To find an Eagle Days program near you, visit www.MissouriConservation.org/4153.



Mic Plunkett is the conservation agent for Wayne county, which is in the Southeast region. If you would like to contact the agent for your county, phone your regional Conservation office listed on Page 3.

“I AM CONSERVATION”

Mike “Tater” Haviland, of Neosho, considers himself an avid cook of wild game. “The most requested dish is my butterflied venison backstraps, marinated in Dales Seasoning, stuffed with jalapeno pepper, cream cheese, bell pepper, bacon wrapped, and then grilled over mesquite,” said Haviland. “The other famous recipe I make isn’t a wild game recipe, but I always use it as a side dish.” It’s camp potatoes, hence Haviland’s nickname. “I have been hunting as long as I can remember, and I cook wild game throughout the year.” To learn more about conservation activities, visit www.MissouriConservation.org.—PHOTO BY DAVID STONNER



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Missouri households*